

# Test Pit Safety Module for Septic Inspectors

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# Module History

- Partnered with the Environmental Engineering Program
- Incorporated training module into recertification for Registered Sanitarians

# Background

- As of May 2007, there are 422 Registered Sanitarians in Connecticut.
- Registered Sanitarians are employed as the following in Connecticut:
  - » Public Sector town officials
  - » Employees of private companies
  - » Soil scientists

# Septic Test Pit Safety

New on-site waste disposal systems require Sanitarians to enter into test pits to examine soils as part of the approval process.

The following slides detail ways to prevent becoming injured or killed when entering and examining test pits.

# Test Pit Safety

- ❗ Entering deep test pits above the waist can result in bodily harm or death in the event of a cave in.
- ❗ According to OSHA, the fatality rate for excavation work is 112% higher than the rate for general construction.
- ❗ Many of these fatalities occur due to soil collapses from excavations.

# Excavation and Trenching Fatalities in the US, 1992-2001

Number and Percentage of Excavation and Trenching  
Fatalities by Event-United States 1992-2001

Event (OIICS* Code)	No.	(%)
Excavation/Trenching Cave-in (041)	411	(75.8)
Struck By Object (02)	35	(6.5)
Pedestrian Struck by Vehicle/Equipment (43)	19	(3.5)
Caught in or Compressed by Equipment/Objects (03)	14	(2.6)
All Other Events	63	(11.6)
Total	542	(100)

Source: Census of Fatal Occupational Injuries (Excludes New York City).

\*Occupational Injury and Illness Classification System.

## Test Pit Injury Examples

- In Virginia, a soil scientist was buried alive by a backhoe operator while performing a soil profile. The worker was buried for 20-30 minutes and was pronounced dead.
- A sanitarian in Oregon injured his leg which required surgery while entering a test pit. The sanitarian lost his footing on loose soil.
- A sanitarian in California received a severe allergic reaction to poison ivy while working on a soil profile.



A 22 year old man in Ohio was killed in 2002, when installing a sewer line. He was buried alive under soil and mud.

Montgomery County Coroner's Office, New York Times

# Always enter and exit any test pit safely!

- ✓ Use care while descending the ramp into any test pit, especially if the soil is loose or wet.
- ✓ Never jump down into a test pit.
- ✓ Have a plan of escape in the event of a sudden collapse.
- ✓ Avoid entering any test pit that is not ramped.

# Never enter a test pit that appears unsafe!

## A test pit may be unsafe if:



- ✓ You cannot see the bottom of the pit due to collected water. Water reduces the stability of the soil, making a collapse more likely.
- ✓ There is ice at the bottom of the test pit.
- ✓ There is soil piled close to the edge of the test pit. OSHA recommends piling soil at a minimum of two feet from the pit's edge.

## Never enter a test pit if:

- ✓ You see any underground utility lines present.
- ✓ There is heavy equipment or machinery within two feet of the pit's edge.
- ✓ Heavy machinery is creating vibration near the pit. Wait until all equipment is finished running before entering pit.
- ✓ Any loose rocks or other hazards are visible.

# Unsafe Soil Placement



# **Never operate heavy equipment near a test pit!**

- ❗ Park excavators and heavy trucks far enough away from the edge of the test pit to prevent collapses (at least two feet).
- ❗ Keep a distance between the excavator and the edge of the test pit when in use.
- ❗ Never pile excavated soil closer than two feet from the edge of the test pit.

Soil can be very heavy. One cubic yard of soil (about as much as needed to fill a refrigerator) can weigh as much as a small automobile!



Graphics provided by eLCOSH

A typical test pit contains almost 2 cubic yards of soil weighing approximately 6,000 pounds. This is the weight of a small pickup truck.

# **Always use personal protective equipment (PPE) while working in a test pit**



Wear steel-toed boots: rocks can break away from loose soil and injure your feet.



Wear a hard hat: falling soil or other debris can cause head injuries and scalp lacerations.

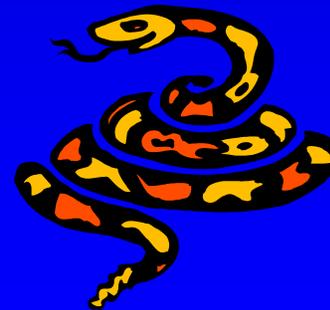


Wear work gloves: protect hands from poison ivy roots, sharp rocks, and other hazards.



Place an orange cone or flag outside of the test pit you are inspecting to alert others on the site that you are in the pit.

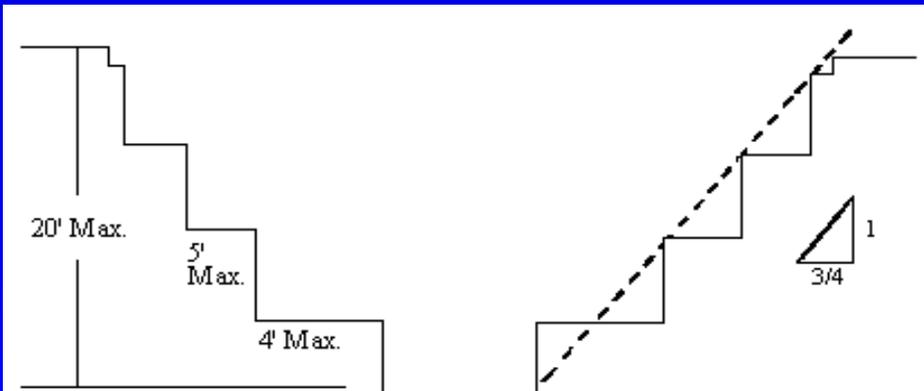
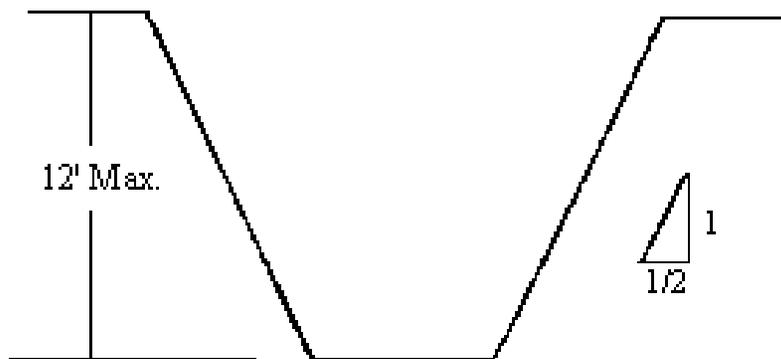
# Be aware of living hazards that can be in or around a test pit



# Sloping and Benching

Sloping and benching are practices of sloping or stepping the sides of an excavation to prevent deadly collapses. This practice works by decreasing the stress on the walls of the test pit.

When practical in deep test pits, encourage the excavator to slope or bench a side or sides of test pits.



# Promptly backfill test pits after site evaluation is complete

Open test pits can pose dangers to the following:

- Children Playing
- Pets
- Other Workers on a Construction Site

In addition, test pits may provide breeding grounds for mosquitoes when they contain standing water for long periods of time.

# Trainings to Date

- Module was presented at Southern Connecticut State University by Environmental Engineering Program staff.
- 45 Registered Sanitarians were trained at this course.
- This specific module was well received by all students.

# Future Trainings

Module will be presented at the following trainings:

- September 2007 Training for Local Health Officials.
- October 2007 Soils course, open to local officials and public.

# Additional Trenching and Excavation Resources

- OSHA Quick Card  
[http://www.osha.gov/Publications/quickcard/trenching\\_en.pdf](http://www.osha.gov/Publications/quickcard/trenching_en.pdf)
- MMWR Occupational Fatalities During Trenching and Excavation Work  
United States, 1992 - 2001.  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5315a2.htm>
- Trenching and Excavation OSHA Standards  
<http://www.osha.gov/SLTC/trenchingexcavation/standards.html>
- OSHA Construction e-Tool; Trenching and Excavation  
<http://www.osha.gov/SLTC/etools/construction/trenching/mainpage.html>